

UNISYS

CTOS[®]

**Printer Pass-Through
(PPT)**

**Operations
Guide**

Release 2.2

Priced Item

April 1991
Distribution Code SA
Printed in U S America
3755 4987-000

UNISYS

CTOS®

**Printer Pass-Through
(PPT)**

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Page Status

Page	Issue
iii	Original
iv	Blank
v through vii	Original
viii	Blank
ix through xi	Original
xii	Blank
1-1 through 1-3	Original
1-4	Blank
2-1 through 2-4	Original
3-1 through 3-10	Original
4-1 through 4-10	Original
5-1 through 5-6	Original
A-1 through A-2	Original
B-1 through B-2	Original
Glossary-1 through 6	Original
Index-1 through 2	Original

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About This Guide

Purpose

This guide enables system administrators to install CTOS® Printer Pass-Through (PPT) and operate the PPT status monitor utility. The status monitor provides host programmers with the information needed to control and send data to PPT printers and disk files.

Scope

This guide describes copying, configuring, installing, and operating PPT. It also provides information for writing host application programs.

Audience

The audience for this guide is the system administrator who wants to install and operate PPT. It is also for the use of programmers who want to write applications that use PPT services. The system administrator can use sections of this guide to assist operators (nonprogrammers) in configuring and installing PPT.

Prerequisites

System administrators should be familiar with CTOS systems and particularly with the CTOS Editor and the use of the files necessary for direct and spooled printing. Host programmers also should be familiar with CTOS BMULTI data communications service and the general principles of controlling printers over a data communications line.

How to Use This Guide

This guide provides an overview of the PPT product, information necessary to configure and install PPT, and instructions for the use of the PPT status monitor.

Organization

This guide consists of five sections and two appendixes:

Section 1. Overview

This section provides a general introduction to the CTOS Printer Pass-Through (PPT) product and a description of its major features.

Section 2. System Requirements

This section lists the hardware and software requirements for using PPT, as well as other system constraints that may affect the use of PPT.

Section 3. Software Installation

This section describes the steps to copy the PPT software from the distribution disks onto the hard disk of a CTOS workstation or shared resource processor, and lists the files copied and the commands created.

Section 4. Configuring and Installing PPT

This section describes the tasks of configuring PPT to operate on a CTOS system and loading PPT into RAM memory as a system service.

Section 5. Using the PPT Status Monitor

This section describes how to use the PPT status monitor utility.

Appendix A. Logical ACK Exchange Sample

This appendix provides an example of a "conversation" between a host and a CTOS system.

Appendix B. PPT Configuration Worksheet

This appendix provides a worksheet for recording PPT configuration information.

A glossary and an index are also included. Additional information can be found in the Release Notes file, located on the CTOS BMULTI software disk.

Related Product Information

You may find the following documents helpful in performing the tasks described in this guide. They are published by Unisys Corporation and can be ordered through Corporate Software and Publication Operations.

Product Documentation

In addition to the *CTOS Printer-Pass Through (PPT) Operations Guide*, the following printed product information is packaged with release 2.2 of this product:

CTOS BMULTI Agent Operations Guide
CTOS BMULTI Operations and Programming Guide
CTOS BMULTI/X.25 Operations Guide

PPT itself is packaged as part of the CTOS BMULTI communications service product.

CTOS Documentation

CTOS programmers and operators who want details on Standard Software commands, Executive features, and status codes may find the following manuals useful:

CTOS Executive User's Guide
CTOS Executive Reference
CTOS Status Codes Reference Manual

Notation Conventions

This guide uses the following typographical conventions:

Words that you are to type and that appear on the screen are shown in **bold**.

Parameter names are shown in *italic*.

Keys are shown in uppercase letters; for example, press the GO key.

When two keys are to be used together for an operation, they are hyphenated. For example, SHIFT-RETURN means that while you hold down the SHIFT key, you press the RETURN key.

Table of Contents

About This Guide	v
-------------------------------	----------

Section 1. Overview

Product Description	1-1
Features	1-1
Space Compression	1-2
Tasks and Commands	1-3

Section 2. System Requirements

Hardware	2-1
Software	2-1
Disk Usage	2-2
System Configuration	2-3
Spooled Printing	2-4
Direct Printing	2-4

Section 3. Software Installation

Before You Start	3-1
Using Software Installation	3-2
Workstations	3-2
Shared Resource Processor Systems	3-2
XESoftware Installation	3-3
Software Installation	3-3
Using Installation Manager	3-4
Viewing Installed Software	3-4
Installing Software	3-5
Files Copied to Hard Disk	3-8
Commands Created	3-8
Removing PPT From Your System	3-8
Using Installation Manager to Remove Files and Commands	3-9
Using the Delete Command to Remove Files	3-9
Using the Command File Editor to Remove Commands	3-10
Removing Individual Commands	3-10

Section 4. Configuring and Installing PPT

Prerequisites	4-1
PPT Configuration File	4-2
Installing PPT	4-9
Manual Installation	4-9
Automatic Installation at Bootup	4-10
Deinstalling PPT	4-10

Section 5. PPT Status Monitor

Entering the Status Monitor	5-2
PPT Status Monitor Display	5-2
Status Monitor Functions	5-3
Split	5-3
Xmt	5-3
Recnfg	5-4
Lock/Unlock	5-5
Exit	5-5
Errors and Error Recovery	5-5
Printer Errors	5-6
System Command Errors	5-6

Appendix A. Logical ACK Exchange Sample

Appendix B. PPT Configuration Worksheet

Glossary	1
----------------	---

Index	1
-------------	---

Figures

2-1.	PPT in a cluster configuration	2-4
5-1.	Sample PPT Status Monitor Display	5-2
5-2.	PPT Reconfiguration Form	5-4
A-1.	Logical ACK (LOG ACK) Exchange Sample	A-1

Section 1

Overview

Product Description

CTOS Printer Pass-Through (PPT) is a system service that enables a Unisys A-Series host application to send output to a disk file or printer attached to a CTOS system. The host identifies these devices by their network address and sends information to them through the CTOS BMULTI data communications service. PPT uses Queue Manager to handle spooled print requests.

PPT normally runs as a background system service, unseen after installation. However, PPT also includes a status monitor utility that displays operational statistics of PPT devices, including all spooled printers serviced by a Queue Manager running on a CTOS server. The status monitor utility allows you to send messages to the host and dynamically reconfigure printers served by PPT.

Additional information about new PPT features and update information can be found in the Release Notes file on the BMULTI software installation disk.

Features

PPT features include:

- Up to 20 PPT device addresses are available for use.
- The IDS and enhanced IDS modules are supported.
- PPT can operate over the CTOS BNet communications service.
- PPT can be configured for both spooled and direct printing, and for both serial and direct printers.
- Normal, image, and binary modes are available for spooled printing.
- Non-spooled devices can be locked.
- Data filtering is supported.

- Transparent mode printing is supported, where characters are sent to the attached printer exactly as received from the host.
- Duplicate messages can be printed or suppressed.
- Form feed characters can be stripped from the printer output before the spooler bytestream is split.
- Multiple copies of PPT can operate on the same CTOS workstation or shared resource processor.
- Date and time displays in the PPT status monitor are nationalized to reflect international language conventions.

Space Compression

The space compression feature of PPT allows you to reduce the number of space characters sent over a data communications line, thereby using the line more efficiently. The escape sequence for space compression is **ESC [*n* *a***, where

[is a required character, the left square bracket.

n is the ASCII representation of the decimal number of spaces.

The value of *n* must be between 0 and 32767 (decimal), inclusive.

a terminates the sequence.

For example, the following sequence causes PPT to insert 120 spaces into the print buffer:

ESC [120 a

(hexadecimal representation: 1B 5B 31 32 30 61)

The hexadecimal representation is the actual sequence of data transmitted over the data communications line. Because of the differences in data types in various programming languages, the host programmer is responsible for determining the appropriate data structure that represents the hex values. For example, in ALGOL the escape sequence would be represented by:

```
WRITE (LINE), ("abc", 4"27", "[00120A", "def", 4"0D25"));
```

Tasks and Commands

Use the following table to locate tasks you will perform using PPT, associated commands, and where you can turn in this guide for more information. The commands listed below are not a complete list of all the commands associated with a particular task, but rather representative examples.

Task	Command	Section
Determine the system requirements for using PPT	Not applicable	2
Copy PPT to your hard disk	Software Installation or Installation Manager	3
Edit the PPT configuration file	Edit	4
Install PPT as a system service	Install PPT	4
Remove PPT as a system service	Deinstall PPT	4
Operate the PPT status monitor utility	PPT Status	5

Section 2

System Requirements

This section describes the hardware, software and other system resources you need to install and use Printer Pass-Through (PPT).

Hardware

PPT can be used on CTOS workstations that use any of these processors:

- Real mode (186 processors)
- Protected mode (286 and 386 processors)
- Shared resource processors (XE520 and XE-530)

Note: *PPT can only be stored on the shared resource processors, that is, its files can be physically located on the hard disk associated with the shared resource processor. To operate the PPT status monitor, PPT requires a CTOS workstation.*

PPT can execute on the IDS, enhanced IDS, and DCX modules. PPT can also operate with the LAN (local area network) module.

Software

The following software is required with PPT:

Software	Release Level
BTOS II	3.0.1 or higher
CTOS/XE	3.0 or higher
BMULTI	10.1 or higher
IDMSS (if using the IDS module)	4.0 or higher

CTOS requires that every printer have a printer configuration file. In these files, you can specify a transmission timeout, that is, the period that a workstation waits for a printer to send a "ready to print" signal. You should specify a transmission timeout in the configuration file of all PPT printers because PPT does not have an internal timeout mechanism.

PPTStatus.Queue and *PPTControl.Queue* are file names appended to your *Queue.Index* file during the copying of PPT onto your hard disk. (The *Queue.Index* file is created during copying of Queue Manager.)

PPTStatus.Queue allows the PPT status monitor utility to know the status of a single PPT device if you have installed Queue Manager locally or all PPT printers if you have installed Queue Manager on a CTOS server. *PPTControl.Queue* allows you to print (split) to any PPT printer, transmit a message to the host, reconfigure PPT parameters, and lock or unlock direct PPT printers.

Disk Usage

The approximate amount of disk space occupied by the components of PPT is as follows:

File	Disk Size (Sectors)
PPTInstall.Run	121 sectors
PPTDeinstall.Run	10 sectors
PPTStatus.Run	97 sectors

The values provided are for estimation purposes only. The RAM usage for the system service depends on your specific PPT configuration. As for the disk size values, the software installation process itself may require more disk space than indicated due to the creation of temporary and backup files.

System Configuration

If the host application requires a special printer (for example, the AP9215-1), all printers servicing that queue must be compatible with that particular host application.

Figure 2-1 illustrates PPT installed on a CTOS server/client system, with a variety of spooled and local (direct) printers.

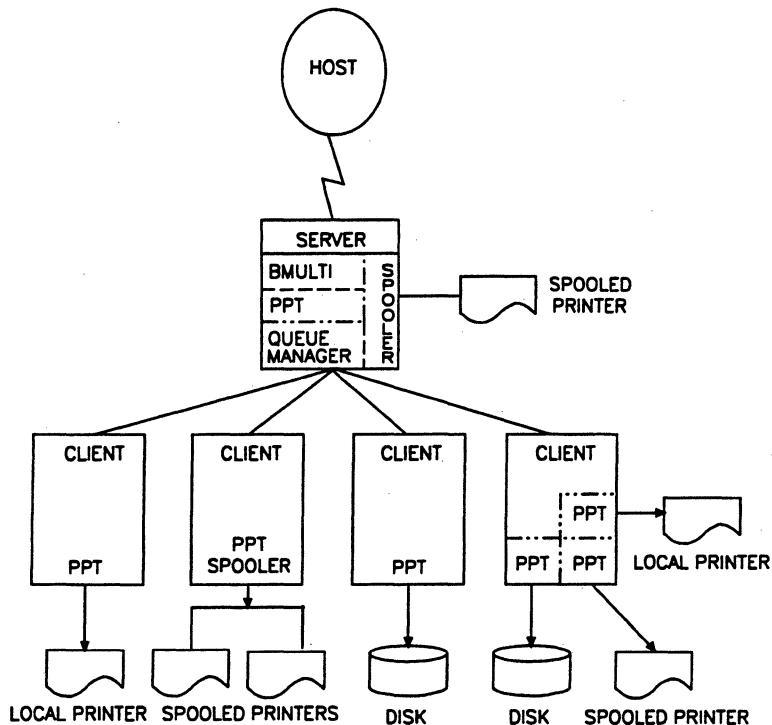


Figure 2-1. PPT in a CTOS Server/Client Configuration

Spooled Printing

PPT prints to the spooler if:

- The spooler queue name (for example, [SplB]) is specified in the device name field of the PPT configuration file.
- The Queue Manager is installed.
- The spooler is installed on the workstation where the printer is attached.

If the spooler queue is serviced by more than one printer, the spooler prints on the first available printer.

PPT automatically "splits" a spooler file after it receives thirty form feed characters, unless a different split option has been selected. "Split" means to put all data previously received, including data present in the print buffer, into the spooler queue for printing (thereby closing the bytestream). This prevents the spooler file from running out of room on the disk.

Direct Printing

PPT supports direct printing on one local printer from the workstation on which PPT is installed. It supports printing for either [LPT], [PTR]A, or [PTR]B.

When using the DCX module, PPT supports either [PTR]1A, [PTR]1B, [PTR]1C, or [PTR]1D. If you use the DCX module, be sure to define the correct device type in the printer definition file *Sys.Printers* by using the full name, including the numerical identifier "1".

Section 3

Software Installation

This section explains how to copy PPT software onto a workstation or a shared resource processor. It includes instructions for using two methods of installation.

The first method uses the software installation commands (Software Installation and XESoftware Installation), which are available with any of the supported operating systems (see Section 2, "System Requirements," for a list of supported operating systems). The second method uses the Installation Manager command, which is available with BTOS II 3.2, CTOS/XE 3.0, and CTOS Standard Software 12.0.

For a more detailed explanation of the software installation commands, consult the *BTOS II Standard Software Operations Guide*. For a more detailed explanation of the Installation Manager command, consult the *CTOS Executive Reference Manual*.

To use PPT, you must configure PPT and install the system service; to do this, refer to Section 4.

Before You Start

- Have your PPT network address or addresses on hand. If you use the Software Installation procedure, you will be asked to type it. You can enter the address or accept the default address (no address) and add it later by editing the PPT configuration file. When using Installation Manager to install PPT, you need to use the CTOS Editor to add the address to the PPT configuration file. If you plan to run multiple copies of PPT system service, you will need to make a unique copy of the configuration file for each one.
- The software installation procedure will install the PPT files on the [Sys] volume. Make sure the workstation on which you are performing the installation is booted from the correct volume.

- If a client workstation will sometimes use PPT installed on an attached shared resource processor and at other times use PPT installed locally, follow the directions for both "CTOS Workstations" and "Shared Resource Processor Systems". Otherwise, follow only the subsection applicable to your system.

Using Software Installation

You can use the software installation commands to copy software from floppy disks onto workstations or shared resource processors.

CTOS Workstations

To install PPT, you must make the software available for your CTOS workstation. Use the following procedure if you plan to run PPT on a server or client workstation.

Note: *PPT is delivered on the third disk of the CTOS BMULTI product distribution disks.*

1. Insert the disk labeled *B25BMU-3* into the floppy disk drive [F0].
2. At the Executive Command line, type *Software Installation* and press the GO key.
3. You will receive a prompt asking you if you want to read or print the Release Notes. The Release Notes contain last-minute information about the product and updates to this guide, if any. Follow the on-screen instructions for reading or printing this file.
4. Follow the additional prompts that appear on the screen to complete the installation. The necessary files are copied, and the commands to run PPT are created.
5. Remove the product disk and keep the disk set in a secure place.

Shared Resource Processor Systems

When a shared resource processor is the server, you copy PPT onto the shared resource processor from a client workstation. If you have an XE520 shared resource processor running the XEBTOS operating system, use the XESoftware Installation command. If you have either an XE520 or XE-530 running the CTOS/XE operating system, use the Software Installation command.

XESoftware Installation

Use the following procedure if you plan to run PPT on an XE520 system running XEBTOS.

Note: *PPT is delivered on the third disk of the CTOS BMULTI product distribution disks.*

1. Insert the disk labeled *B25BMU-3* into the floppy disk drive [F0] at a workstation connected as a client to the shared resource processor.
2. At the Executive command line, type *XESoftware Installation* and press the GO key.
3. You will receive a prompt asking you if you want to read or print the Release Notes. The Release Notes contain last-minute information about the product and updates to this guide, if any. Follow the on-screen instructions for reading or printing this file.
4. Follow the prompts that appear on the screen to complete the installation. The necessary files are copied, and the commands to run the PPT are created.
5. Remove the product disk and keep the disk set in a secure place.

Software Installation

Use the following procedure if you plan to run PPT on an XE520 or XE-530 using CTOS/XE.

Note: *PPT is delivered on the third disk of the CTOS BMULTI product distribution disks.*

1. At a client workstation, boot the workstation from the shared resource processor. (When you do this, the [Sys] volume should refer to the hard disk on the shared resource processor.)

Note: *Make sure you are not using Cluster View (a utility that allows the XE board to be controlled from a client workstation). If you are using Cluster View, the system will not recognize the floppy disk drive.*

2. Insert the disk labeled *B25BMU-3* into the floppy disk drive [F0] at the client workstation.

3. At the Executive command line, type *Software Installation* and press the RETURN key. The following form appears:

Software Installation

[Cmd File]

[Files to]

[Install file]

The default for the **[Cmd File]** parameter is "[Sys]<Sys>Sys.Cmds."
The default for the **[Files to]** parameter is "[Sys]<Sys>." You may need to change these values to the [!Sys]<Sys> directory or another directory containing a command file.

Change the values, if necessary, and press the GO key.

4. You will receive a prompt asking you if you want to read or print the Release Notes. The Release Notes contain last-minute information about the product and updates to this guide, if any. Follow the on-screen instructions for reading or printing this file.
5. Follow the prompts that appear on the screen to complete the installation. The necessary files are copied, and the commands to run PPT are created.
6. Remove the product disk and keep the disk set in a secure place.

Using Installation Manager

If you are using a version of the CTOS operating system with the Installation Manager command, you can use the Installation Manager command to copy software from floppy disks or QIC tapes onto workstations or shared resource processors. You can also use this command to ensure that the required software is installed, to install software from a server to a client workstation, and to remove software when you no longer need it at a particular location.

Viewing Installed Software

Before you install the new software, view the software already installed on your workstation or shared resource processor to be sure you have all the software required to use PPT. (Refer to Section 2, "System Requirements," for a description of required software.) Use the following procedure:

1. At the Executive Command line, type *Installation Manager* and press the RETURN key. The following form appears:

```
Installation Manager
[Noninteractive?]
```

2. Type *No* and press the GO key. The Software Operations menu appears.
3. Select the *Show Installed Software* option to view the software already installed by Installation Manager. Press the GO key.
4. Select *Private Software* to view software installed on the local hard disk; or select *Public Software* to view the software installed on the server. Press the GO key. A list of currently installed software applications appears.
5. Press the CANCEL key twice to return to the Software Operations menu.
6. Install any software required to run PPT.

Installing Software

Before you can use PPT, you must copy the software onto your local workstation, server, or shared resource processor system.

Installation Manager works the same way for workstations and shared resource processors. An additional capability of Installation Manager is that for software that supports the feature, you can install the software on the server and then install the software on client workstations attached to the server without having to use the BMULTI product distribution disks. BMULTI and PPT support this Installation Manager feature.

Note: *PPT is delivered on the third disk of the CTOS BMULTI product distribution disks.*

1. Insert the disk labeled *B25BMU-3* into the floppy disk drive [F0] at a workstation connected as a client to the shared resource processor.
2. At the Executive Command line, type *Installation Manager* and press the RETURN key. The following form appears:

```
Installation Manager
[Noninteractive?]
```

3. Type *No* (for interactive mode) and press the GO key. The Software Operations menu appears.

Note: *If you leave this parameter blank, the default is NO. Interactive mode lets you select options and read the Release Notes, and should always be used when copying from floppy disks. Noninteractive mode installs the software without pausing for user input.*

4. Select the *Install New Software* option and press the GO key. The Installation Media menu appears.
5. Select the medium you are using to install PPT, *Floppy Installation*, then press the GO key. The Installation menu appears.
6. You can continue installation with the default installation parameters by pressing the GO key, or you can examine/change the installation defaults by selecting the *Examine/Change Defaults* option and then pressing the GO key.

Note: *Unless you pre-configured your installation parameters through Installation Manager, all the defaults are NO. This means the software will be installed on only your local workstation, and any currently installed version of the software will be overwritten. You must change the **Public Installation** parameter to Yes to install the software on a server or shared resource processor.*

7. If you chose the *Examine/Change Defaults* option:
 - a. Decide whether you want the software installed on the server or only on your local workstation. Installing the software on the server allows all the client workstations in the cluster to access the software without using their own disk space.

If you want the software installed on the server, type *Yes* in the **Public Installation** parameter.

If you want the software installed on your local workstation, type *No* in the **Public Installation** parameter.
 - b. Change any other defaults, if necessary, and press the GO key. The User Name menu appears.

- c. Change the default user name, if necessary, and press the GO key. The Command File for appears.
 - d. Change the Command File name if necessary, and press the GO key.
8. You will receive a prompt asking you if you want to read or print the Release Notes. The Release Notes contain last-minute information about the product and updates to this guide, if any. Follow the on-screen instructions for reading or printing this file.
9. Follow the prompts that appear on the screen to complete the installation. The necessary files are copied, and the commands to run PPT are created.
10. When the installation is finished, a message appears stating that the installation has completed successfully. Press any key to return to the Executive Command line. Remove the product disk and keep the disk set in a secure place.
11. Before you can run PPT, you need to edit the PPT configuration file and add the PPT network address. Refer to Section 4, "Configuring and Installing PPT," for more information.

Files Copied to Hard Disk

The files for PPT are copied from the BMULTI product disk to the <Sys> directory on the hard disk.

File Name	Description
PPTConfig0.sys	PPT default configuration file
PPTDeinstall.run	Deinstalls the PPT system service
PPTForm.lib	PPT forms library file
PPTInstall.run	Installs the PPT system service
PPTMsgFile.bin	PPT message file
PPTQueueIndex.temp	Temporary PPT queue index file
PPTStatus.run	Runs the PPT status monitor utility
PPTStatusForm.lib	PPT status monitor forms

Commands Created

The following commands for PPT are created during software installation:

Command	Function
Install PPT	Installs the PPT system service
Deinstall PPT	Deinstalls the PPT system service
PPT Status	Runs the PPT status monitor utility

Removing PPT From Your System

You can permanently remove software from your system to allocate space for other software or to use your copy of PPT on another system without infringing on copyright or license agreements. Depending on your operating system and hardware, there are several ways to remove your software.

Using Installation Manager to Remove Files and Commands

If you have BTOS II 3.2, CTOS VM 2.4, CTOS/XE 3.0, or CTOS Standard Software 12.0 installed on your system, you can use the Installation Manager command to remove software that was installed by Installation Manager. Use the following procedure to remove software:

1. At the Executive Command line, type *Installation Manager* and press the GO key. The Software Operations menu appears.
2. Select the *Remove Software* option and press the GO key.
3. Select either *Public Software* or *Private Software* and press the GO key. A list of currently installed software applications appears.
4. Select the software package you wish to remove and press the GO key.

Installation Manager deletes all related files and removes the associated commands.

Using the Delete Command to Remove Files

You can use the Delete command to remove PPT files from your system.

1. At the Executive command line, type *Delete* and press the RETURN key. The following form appears:

```
Delete
File list
[Confirm each?]
```

2. For the File list parameter, enter the files listed in the previous section, "Files Copied to Hard Disk." Press the GO key. You may use the wildcard characters (* and ?) to shorten the process, but use caution so that you do not accidentally delete files unrelated to PPT.

Using the Command File Editor to Remove Commands

You can use the Command File Editor to remove all product related commands from your system. The Command File Editor also allows you to add and modify commands.

1. At the Executive command line, type *Command File Editor* and press the RETURN key.
2. Move the cursor to select the a PPT command and press the F3 key (Remove). Press the GO key to confirm removing the command. Repeat as needed to remove the other PPT commands.
3. Press the FINISH key, then the GO key to save the changes and exit the Command File Editor.

Removing Individual Commands

To remove individual commands from your system, you can use "Remove Command."

1. At the Executive command line, type *Remove Command* and press the RETURN key.
2. For the "Old command name" parameter, type the name of the PPT command name to be removed. If necessary, type the name of the command file, including the directory path, on the next parameter line. Press the GO key.
3. The command will be removed from the command file.

Section 4

Configuring and Installing PPT

This section describes how to configure Printer Pass-Through (PPT) and install it as a system service on a CTOS workstation or shared resource processor. When a system service is installed, it is loaded into the memory of a CTOS workstation or shared resource as a system service, where it handles PPT requests.

Prerequisites

During software installation (see Section 3), a default PPT configuration file is copied onto the hard disk. This file is named *PPTConfig0.Sys*. If you used the Software Installation procedure to install PPT on your hard disk, your printer address was copied into this file during the installation process. Otherwise, you will need to edit the PPT configuration file to add the address yourself.

Before doing anything else, make a backup copy of this default file. This is important in case the file is accidentally deleted or corrupted during editing. If the file is damaged irreparably, you can make a new copy from the default configuration file on the PPT installation disk.

Each PPT device must have a unique configuration file because each PPT device must have a unique network address. For each PPT device, make a copy of *PPTConfig0.Sys*, and increment the number 0 by one for each copy. That is, copy *PPTConfig0.Sys* to *PPTConfig1.Sys*, *PPTConfig2.Sys*, and so on.

Use the CTOS Editor to modify the configuration file for each PPT device. The worksheet in Appendix B lists the parameters in the default *PPTConfig0.Sys* file. It also provides a place for you to note your changes.

PPT Configuration File

The PPT configuration file contains the parameters used by PPT during its operation. To configure PPT for your environment, use the CTOS Editor to edit a PPT configuration file. You can use the PPT status monitor to change some parameters after you install PPT (the status monitor is described in Section 5).

The following list explains the function of each parameter and gives the valid entry range and default value. A valid entry for each of the parameters is required. Read this information carefully and decide how you want to configure PPT before beginning the installation process.

In the explanation of parameters that follows, to *split* means to put all data previously received, including data present in the printer buffer, into the spooler queue for printing, thereby closing the bytestream.

Parameter	Description
DeviceName (default = [Spl])	The name given to the PPT device: • In the spooler queue, for example, [Spl], [SplB] • As a direct printer, for example, [Lpt], [PTR]A • As a disk file name, for example, <text>Acct.Report
NodeName(ServiceID) (default = none)	The name of the remote BNet node where BMULTI is installed (for example, {Center}, the node name enclosed in braces). Leave this parameter blank if BMULTI is installed on your local cluster. If you are using BMULTI on a remote node, you must have Queue Manager installed on the server of the local node. If BMULTI is being used on your system with the Multiple Gateways Server (MGS), you must enter the ServiceID, as defined in the BMULTI configuration file. It takes the form <ServiceID>, where <i>ServiceID</i> is the unique identification, enclosed in angle brackets.

Parameter	Description
PrintBufferSize (default = 2)	The size in KBytes allocated for the print buffer. The valid range is 2 to 4.
EnableSiSo (default = Y)	Enable or disable Shift-In/Shift-Out (SI/SO) operation. If this parameter is Y, PPT flags BMULTI to recognize SI/SO control characters sent by the host. If enabled, the host can send values to the printer in the range 32–127 (20h–7Fh) and 160–255 (A0h–FFh). In the Shift-In state, BMULTI sends characters from the host to the PPT device unmodified. In the Shift-Out state, BMULTI adds 128 (80h) to each character. This parameter is required because BMULTI is a poll/select protocol that supports 7-bit character codes, which allows only 128 possible characters (0h–7Fh). To support the full ASCII set of 256 characters, BMULTI uses the SO character (0Eh) as a signal to a routine that adds 128 (80h) to each character that follows the SO character. For example, in the Shift-Out state, a 66 (42h) sent by the host is sent to the PPT device as 194 (C2h). <i>ESC-SI/ESC-SO</i> (Escape Shift-In/Escape Shift-Out) are escape character sequences that function identically to the SI/SO characters described previously. However, PPT flags BMULTI to automatically act on <i>ESC-SI/ESC-SO</i>; no parameter selection is necessary. <i>ESC'</i> (Escape apostrophe) is an escape character sequence that host programmers can use along with <i>ESC-SI/ESC-SO</i> to map characters 20h–3Fh to a lower range.

Parameter

EnableSiSo
(default = Y)
(continued)

Description

Through this system, host applications can access the range of characters used by the BMULTI protocol. Without this system, you could not, for example, send a "03" code to a disk file because BMULTI would interpret it as the "ETX" character (ASCII value of 03h).

When in the Shift-In state, PPT subtracts 20h from each character that follows *ESC'*, mapping these characters to the range 00h-1Fh. When in the Shift-Out state, PPT adds 60h (80h minus 20h) to each character that follows *ESC'*, mapping these characters to the range 80h-9Fh. The *ESC'* sequence cannot be filtered out by the control filter. PPT also treats a shifted-out *ESC'* (9Bh A7h) sequence the same as an *ESC'* sequence. If the "desired" character following the shifted-out *ESC'* sequence is not in the range A0h - BFh, then that character is preceded by the 9Bh and A7h characters when it is sent to the output device.

EnableControlFilter
(default = N)

Enable or disable the control character filter. If this parameter is Y (yes), the PPT control filter discards ("filters") unprintable control characters in the hexadecimal range 00h-06h and 0Eh-1Fh. PPT does not filter control characters in the range 07h-0Dh (for example, BEL, BS, HT, LF, VT, FF, CR). When PPT receives an escape sequence, it filters the *ESC* character and sends the control characters that follow to the PPT device. The control filter cannot filter the *ESC'* (Escape apostrophe) sequence.

Parameter	Description
EnableSplitEscChar (default = Y)	Enable or disables printer split on <i>ESC FF</i> (Escape Form-Feed). If this parameter is Y (yes), PPT recognizes the <i>ESC FF</i> sequence as a command to split a spooled file. If the PPT device is a direct printer, an FF is sent to the printer. If the PPT device is a disk file, PPT ignores the <i>ESC FF</i> .
EnableLogicalACK (default = N)	Enable or disable logical acknowledgment. If this parameter is Y (yes), PPT sends a user-selected character to the host whenever the print buffer is empty, including immediately after installation. (ACK means "acknowledge.") There are two separate methods for telling the host when PPT is ready for more data. In the default method, known as <i>ACK Trigger Level</i>, PPT asks the host for more data when the receive buffer is empty by putting its BMULTI address in the receive-ready state. In the other method, known as <i>Logical ACK</i>, PPT sends a user-selected character to the host whenever the print buffer is emptied. If the buffer is still full and the host is polling PPT, PPT tells its BMULTI address to go into the idle state until PPT is ready to send the Logical ACK message. The Logical ACK character is dependent upon the host application.

Parameter

Description

EnableLogicalACK
(default = N)
continued

Logical ACK increases efficiency in the message send/receive cycle for any single address by alerting the host as soon as the PPT receive buffer is ready to accept more data. If you enable Logical ACK and the host does not poll, the purpose of Logical ACK is defeated.

The format of the Logical ACK message is:

```
S A A S L E B
O D D T O T C
H 1 2 X G X C
      I
      C
      A
      L
      A
      C
      K
```

See Appendix A for a sample Logical ACK exchange between a host and BMULT/PPT.

SelectLogicalACK
(default = 20h)

A value in the hexadecimal range 20h–7Fh representing the *Logical ACK* character. See the previous parameter.

EnableAutoSplitFF
(default = N)

Enable or disable automatic split when a Form Feed character is received. If this parameter is Y (yes), PPT recognizes the FF (Form Feed) control character as a command to split a spooled file. If the PPT device is a direct printer, a form feed is sent to the printer. If the PPT device is a disk file, PPT ignores the form feed.

Set this parameter to N if the following parameter, EnableAutoSplitTimeout, is set to Y.

Parameter	Description
EnableAutoSplitTimeout (default = Y)	Enable or disable automatic split after a specified time has elapsed. If this parameter is set to Y (yes), PPT splits a spooled file after a time specified by the following parameter. Set this parameter to N if the previous parameter, EnableAutoSplitFF, is set to Y.
SelectAutoSplitTimeout (default = 10 minutes)	The number of minutes before PPT automatically splits a spooled file. This number represents idle time, or the time after PPT last received data from the host.
EnableRcvTranslation (default = N)	Enable or disable translation of received data. Under most circumstances, you should not need to change this parameter. Unisys uses it to create various international versions of PPT.
Address (default = none)	The network address used by BMULTI for the PPT service. This value can be any two ASCII characters between 20h and 7Fh. The PPT address must be unique for each cluster configuration, regardless of having multiple gateways running under MGS.
Transparent Mode? (default = N)	Enable or disable transparent mode printing. If this parameter is Y (yes), PPT passes messages straight through to the attached printer without any interpretation. Transparent mode effectively turns off the following PPT operations: • Space Compression • The parameters: EnableSplitEscChar and EnableControlFilter • ESC' (Escape apostrophe, see "EnableSI/SO")

Parameter

Description

Transparent Mode?
(default = N)
continued

PPT functions not affected by the selection of transparent mode are:

- EnableAutoSplitFF
- EnableAutoSplitTimeout
- EnableLogicalAck
- EnableSO/SI (and all extended character translation)
- EnableRcvTranslation

Spooler/Printer
Normal/Image/Binary
(default = Normal)

Selects printer mode. The selections for this parameter are *N*, *I*, and *B* (Normal, Image, and Binary). The characteristics of each mode are:

Normal mode:

- Prints the banner page between files
- Converts tabs into spaces and end-of-line characters into device dependent codes (according to the printer configuration file)
- Recognizes escape sequences for manual printer intervention

Image mode:

- Prints the banner page between files
- Performs no code conversion
- Recognizes escape sequences for manual printer intervention

Binary mode:

- Does not print the banner page between files
- Performs no code conversion
- Does not recognize escape sequences

For more information about Spooler/Printer modes, refer to the *CTOS System Reference Manual* under "Sequential Access Method".

Parameter	Description
Print Duplicate Messages? (default = N)	Enable or disable printing of duplicate messages. If this parameter is Y (yes), PPT will receive from BMULTI and process messages with a duplicate transmission number. Otherwise, duplicate messages are discarded.
Strip Form Feeds Before Spooler Split? (default = Y)	Selects whether FF (Form Feed) characters are to be stripped before the spooler is split. If this parameter is Y (yes), FF characters that cause a Spooler split will not be output to the Spooler. Otherwise, if the FF character is not stripped, an extra blank page might be printed with each Spooler split.

Installing PPT

Manual Installation

After you have edited the PPT configuration file (or files), you can install PPT, that is, load it into memory as a system service. PPT can be loaded this way on a CTOS workstation, but you must use the automatic installation procedure for shared resource processors.

1. At the Command prompt, type *Install PPT* and press the RETURN key.
2. Enter the information in the form that appears

```
Install PPT
[PPT Printer Number]
[PPT Configuration File]
```

3. When you are finished entering the information, press the GO key.

The PPT printer number, which can be from 0 to 99, identifies each copy of PPT installed on a cluster and is displayed by the PPT status monitor utility. In addition to being a means of identification, the printer number is used by PPT as a reference to the configuration file. In this case, some

printer number *X* corresponds to the file *PPTConfigX.Sys*. If you specify the printer number, you do not have to enter the configuration file name, as long as it follows the format, *PPTConfigX.Sys*. If the printer number and configuration file name conflict, PPT uses the file name.

Automatic Installation at Bootup

To install PPT on a CTOS workstation so that the PPT system service is available at bootup, edit the file *[Sys]<Sys>SysInit.Jcl*. On a shared resource processor, this file is either *[Sys]<Sys>InitCPxx.Jcl* or *[Sys]<Sys>InitTPxx.Jcl* (depending on your installation). Enter the line:

```
$RUN [Sys]<Sys>PPTInstall.Run,Printer#,ConfigurationFile
```

(where *Printer#* and *ConfigurationFile* are the appropriate values).

Deinstalling PPT

The *Deinstall PPT* command removes PPT as an active system service, freeing the system memory it occupied. This allows you to change installation parameters and reinstall the system service without having to reboot.

- You must deinstall PPT on the workstation on which you installed it.
- You must finish any application that uses PPT before using the deinstall utility.
- The deinstall utility must be executed in the primary partition of the workstation in which PPT is running. You cannot, therefore, deinstall PPT when running Context Manager.
- You cannot deinstall PPT from a shared resource processor. To remove it from service, you need to edit the appropriate JCL file, removing the entry or entries for PPT, and reboot the processor.
- If multiple copies of PPT are running on the same CTOS workstation, the last PPT service installed will be the first one deinstalled.

To activate the deinstall utility from the Executive, type *Deinstall PPT* on the Executive command line and press the GO key.

Section 5

PPT Status Monitor

The CTOS Printer Pass-Through (PPT) status monitor displays the status of PPT devices. It displays the status of a single PPT device if you have Queue Manager or GPS installed locally or all PPT printers if you have installed Queue Manager or GPS on a CTOS server.

The PPT status monitor provides functions to:

- Split a spooled printer file; to split means to put all data previously received, including data in the print buffer, into the spooler queue for printing (thereby closing the bytestream)
- Transmit a message to the host
- Reconfigure PPT parameters without having to reinstall PPT
- Lock and unlock direct printers
- Exit the status monitor

The PPT status monitor may be used with Context Manager.

For more status information about spooled devices, use the GPS Print Manager or the Spooler Status command in the CTOS Executive to view the Spooler status display.

Entering the PPT Status Monitor

To enter the PPT status monitor, type *PPT Status* in the command line of the CTOS Executive and press the RETURN key. Figure 5-1 shows a sample status monitor display.

PPT Status			R0.0.000	Date Time		
Printer ID	Address	Device Name	# Spooled Characters	Last Msg	Locked	Erc
1	A1	[SPL]	2000	03:30		300
2	C3	[Lpt]		03:12		
3	D4	PPTfile		02:05		

Split	Xmt	Recnfg	Lock	Unlock					Exit
-------	-----	--------	------	--------	--	--	--	--	------

Figure 5-1. Sample PPT Status Monitor Display

PPT Status Monitor Display

The upper portion of the display shows the current date and time as well as the column headings for each status category. This portion of the screen is always displayed.

The middle portion of the display shows the current status of all devices connected to PPT and is updated every three seconds. You can scroll this portion of the display using the SCROLL UP, SCROLL DOWN, NEXT PAGE, and PREV PAGE keys. The cursor position on this portion of the screen is indicated by marking the line in reverse video.

The lower portion of the display shows which function keys on the keyboard activate the functions. This portion of the display is always shown.

Status Monitor Functions

Split

The split function is used with spooled printers. When a spooler bytestream is split, all data previously received, including information in the print buffer, is sent to the spooler queue for printing. To split a printer spooler:

1. Move the cursor to the line containing the address of the printer which corresponds to the print spooler to be split.
2. Press the Split key (F1).
3. Press the GO key to execute the function or the CANCEL key to cancel it.

A spooler bytestream can be split by the Escape Form Feed (ESC–FF) sequence, the Form Feed (FF) character, or automatic split timeout. For more information on their use, see Section 4, "PPT Configuration File," in the configuration file parameter descriptions.

Xmt

The Xmt (Transmit) function is used to transmit a message to the host.

1. Move the cursor to the PPT address and press the XMT key (F2). The cursor moves to a text input line at the bottom of the screen.
2. Enter the message.
3. Press the GO key to send the message or the CANCEL key to cancel the input.

You cannot cancel the message once you have pressed the GO key.

Recnfg

Recnfg (Reconfigure) is used to change PPT parameters.

1. Move the cursor to select the PPT address and press the Recnfg key (F3). The status display is replaced by the reconfiguration form, shown in Figure 5-2.

The current parameters and defaults are displayed. The PPT address and print buffer size are displayed for your information only; they cannot be changed.

PPT Status		R0.0.000		Date Time		
Printer ID	Address	Device Name	# Spooled Characters	Last Msg	Locked	Erc
Reconfigure PPT						
[Configuration File]						
Address						
Print Buffer Size						
[Device name, e. g. [Spl]						
[Enable SI/SO?, e. g. Y]						
[Enable control code filter?, e. g. N]						
[Enable Split ESC?, e. g. Y]						
[Enable Logical ACK?, e.g. N]						
[Select LOG ACK char, e.g. 20H]						
[Enable Autosplit on Formfeed?, e. g. N]						
[Enable Autosplit Timeout?, e. g. Y]						
[Select Split Timeout (minutes), e. g. 10]						
[Enable Receive Translation?, e. g. N]						
[Enable Transparent Mode?, e. g. N]						
[Byte Stream Norm/Image/Binary?, e. g. N]						
[Print Duplicate Messages?, e. g. N]						
[Strip FormFeeds on Split?, e. g. N]						
Press GO to execute, or CANCEL to deny						
Split	Xmt	Recnfg	Lock	Unlock		Exit

Figure 5-2. PPT Reconfiguration Form

2. Enter the changes in the appropriate fields.
3. Press the GO key to accept the changes or the CANCEL key to cancel the reconfiguration. The status display is then redisplayed.

Lock/Unlock

The Lock and Unlock functions are used with direct printers. When "Locked," a direct printer can then be used by applications other than PPT on the workstation. PPT data is not printed on that printer until it is unlocked.

To lock a direct printer, move the cursor to the printer to be affected and press the Lock key (F4). To unlock a printer, move the cursor to select the printer and press the Unlock key (F5).

Exit

To exit from the status monitor, press the Exit key (F10) and the GO key or the FINISH key.

Errors and Error Recovery

If the direct printer is not ready or if a fault has occurred, a message appears on the PPT status display. Spooled printer errors are shown on the spooler status display.

To cancel printing to a direct printer, transmit the appropriate host command to abort the current job (for example, DS). The transmit command sends an end message to the host.

Note: *CTOS requires that every printer have a printer device configuration file. In these files, you can specify a transmission timeout, that is, the period that a workstation waits for a printer to send a "ready to print" signal. You should specify a transmission timeout in the configuration files of all PPT printers because PPT does not have an internal timeout mechanism.*

Printer Errors

Direct printer errors are shown on the PPT status display. Check the printer to see if it is offline or out of paper.

If PPT is using the spooler, use the Spooler Status command to view printer status.

System Command Errors

If an incorrect file name or parameter is entered, an error message is displayed on the screen. Enter the correct name or parameter to remove the error.

Appendix A

Logical ACK Exchange Sample

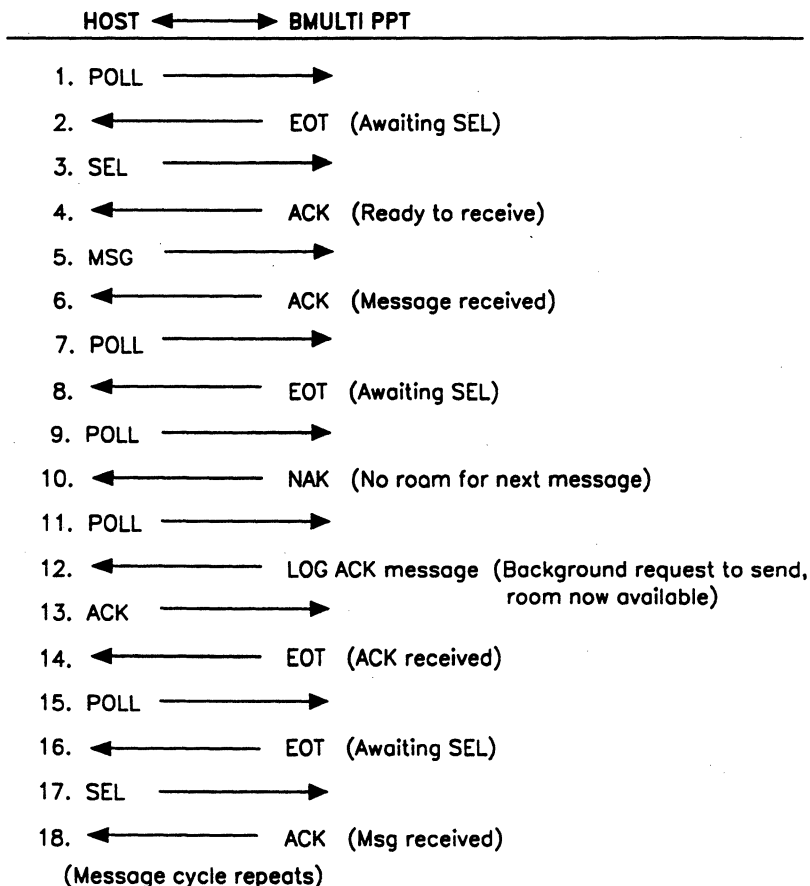


Figure A-1. Logical ACK (LOG ACK) Exchange Sample

Appendix B

PPT Configuration Worksheet

This appendix consists of a worksheet for recording PPT configuration information. You may use either this master copy or make photocopies of the worksheet.

After filling out the worksheet, you should file it as a record for troubleshooting or for future configurations.

PPT Configuration Worksheet

Screen Message	Default Value	Change to
DeviceName	[Spl]	_____
NodeName(ServiceID)	(none)	_____
PrintBufferSize	2	_____
EnableSo/Si	Y	_____
EnableControlFilter	N	_____
EnableSplitEscChar	Y	_____
EnableLogicalACK	N	_____
SelectLogicalACK	20h	_____
EnableAutoSplitFF	N	_____
EnableAutoSplitTimeout	Y	_____
SelectAutoSplitTimeout	10	_____
Enable Rcv Translation	N	_____
Address	(none)	_____
Transparent Mode?	N	_____
Spooler/Printer Normal/Image/Binary	N	_____
Print Duplicate Messages?	N	_____
Strip Form Feeds Before Spooler Split?	Y	_____

Glossary

A

ASCII

The American Standard Code for Information Interchange, which defines the character set codes used for information transfer between equipment.

B

banner page

A distinctive page that you can request the spooler to print at the beginning of each document. In addition to flagging the beginning of documents printed one after the other, the banner page provides information including the name of the file, date and time of printing, copy number, and, optionally, the text of a notice file.

binary mode

A printing mode option that does not print the banner page or recognize the escape sequences for manual intervention during printing.

BMULTI

Used by CTOS workstations and shared resource processors to communicate with Unisys A-Series systems. BMULTI uses a poll/select protocol. Refer to the *CTOS BMULTI Operations and Programming Guide* for more information.

C

configuration file

The PPT configuration file contains the parameters used by PPT during its operation.

control filter

A PPT facility which automatically discards (filters) non-printable control characters in the hexadecimal range 00h-06h and 0Eh-1Fh.

CTOS Editor

An application that allows you to edit text using the keyboard. The text appears on the screen as it would on a typewritten page. The Editor is used to modify the PPT configuration file.

D

deinstalling PPT

The process by which PPT is removed from a CTOS workstation as a system service.

device

A hardware component such as a printer, tape drive, floppy disk drive, or hard disk drive.

direct printing

Transfers text directly from files to a parallel or serial printer attached to a workstation. You cannot begin a direct printing operation while another is in progress, and you must wait until a direct printing operation finishes before you can use the workstation for other activities.

F

Form Feed character

An ASCII code, FF, that tells a printer or similar device to end printing on the current page and resume on the next one.

I

image mode

A printing mode option that prints the banner page before each file, and recognizes escape sequences for manual intervention during printing. It does not perform character-code conversions.

installing PPT

The process by which PPT is loaded on a CTOS workstation or shared resource processor as a system service.

L

Lock

A function available in the PPT status monitor that makes a direct printer available for applications other than PPT on the workstation. PPT data is not printed on that printer until it is unlocked.

logical ACK

A user-selected character sent to the host whenever the print buffer is empty, including immediately after installation. (ACK means "acknowledge.")

N

normal mode

A printing mode option that prints the banner page before each file, converts tabs into spaces and end-of-line characters to device-dependent codes, and recognizes escape sequences for manual intervention during printing.

P

parameters

Values used by a program to define its operation. In the case of PPT, configuration file parameters are used to tell PPT how to communicate with a specific printer.

PPT

See Printer Pass-Through.

Printer Pass-Through (PPT)

A system service that enables an A-Series host application to send output to a printer or disk file.

Q

Queue Manager

A CTOS utility that coordinates users' print commands with the spoolers that manage the system's printers.

R

Recnfg

See Reconfigure.

Reconfigure (Recnfg)

A function available in the PPT status monitor, Reconfigure allows you to change the operating parameters for PPT with respect to a specific printer.

Release Notes file

Contains information about PPT features and update information. The Release Notes file is distributed on the first BMULTI software installation disk.

S

server workstation

The hub of a cluster configuration, it provides a file system, queue management, and other services to all the cluster workstations. In addition, it supports its own interactive and application systems.

Service ID

Used with the Multiple Gateways Server (MGS), the Service ID identifies a gateway, in the case of PPT, a specific copy of BMULTI. The Service ID is used with PPT in the PPT configuration file.

shared resource processor

CTOS systems that can operate as cluster servers to large numbers of CTOS client workstations. PPT can be loaded on the shared resource processor and thus made available to the client workstations.

Shift-In/Shift-Out

A character sequence that allows PPT, which uses a 7-bit character, to use the entire ASCII character set, which would ordinarily require 8-bits.

Software Installation

The method through which files are copied from the product distribution floppy disk onto the hard disk of a CTOS workstation or shared resource processor, and commands are created to use the new software.

space compression

A technique by which a number of space characters are represented by a short sequence of code characters. This reduces the number of space characters sent over a data communications line, thereby using the line more efficiently.

split

To put all data previously received, including data present in the print buffer, into the spooler queue for printing (thereby closing the bytestream). The Split function is also available in the PPT status monitor.

Spooler

The Spooler is a CTOS utility that manages the operations of printers you assign to its control. The Spooler uses special files called queues to store print requests until a printer becomes available.

status monitor

Displays the status of PPT devices. It displays the status of a single PPT device if you have Queue Manager or GPS installed locally or all PPT printers if you have installed Queue Manager or GPS on a CTOS server workstation.

system service

When a system service is installed, it is loaded into the RAM memory of a CTOS workstation or shared resource processor, where it handles requests.

T

transmission timeout

The period of time that a workstation waits for a printer to send a "ready to print" signal.

transparent mode

When in transparent mode, PPT passes messages straight through to the attached printer without interpretation.

U

Unlock

A function available in the PPT status monitor that returns control of a direct printer back to PPT. Data for applications other than PPT is not printed on that printer unless it is locked.

X

Xmt

The Xmt command in the PPT status monitor is used to transmit a message to the host.

Index

A

ACK trigger level, 4-5
address, (*See network address*)
automatic PPT installation at
bootup, 4-10

B

BNet, configuration for, 4-2
BMULTI, 1-1, 2-1

C

commands
Deinstall PPT, 4-10
Install PPT, 4-9
PPT Status, 5-1
tasks and commands, 1-3
configuration file, 4-2
parameter descriptions, 4-2 to
4-9
control filter, 4-4

D

Deinstall PPT, 4-10
device name, 4-2
direct printing, 2-4
supporting the DCX, 2-4
duplicate messages, 4-9

E

ESC-' (ESC apostrophe), 4-4
ESC [(space compression), 1-2
ESC Shift-In/Shift-Out
(ESC-SI/SO), 4-3
error recovery, 5-5
printer, 5-6
system command, 5-6

F

filtering host data, 4-4

L

Logical ACK
description, 4-5 to 4-6
example, A-1
selecting, 4-6

N

network address, 3-1, 4-7
node name, 4-2

P

PPT, (*See Printer Pass-Through*)
Printer Pass-Through (PPT)
configuration file, 4-2
configuration worksheet, B-1 to
B-2

- description, 1-1
- in a server/client configuration, 2-4
- installing the system service, 4-9
 - to 4-10
- network address, 3-1, 4-7
- printer number, 4-1
- software installation, 3-1
 - network address, 3-1
 - on CTOS workstations, 3-2
 - on shared resource processors, 3-2
- preparation before installing, 3-1
- using Installation Manager, 3-4
- status monitor, 5-1
- system configuration, 2-3
- system requirements, 2-1
- system service, 1-1
- printer
 - binary mode, 4-8
 - buffer size, 4-3
 - configuration file, 4-2
 - error recovery, 5-5
 - image mode, 4-8
 - normal mode, 4-8
 - transparent mode, 4-7
- printing
 - direct, 2-4
 - spooled, 2-4

Q

- Queue Manager, 2-2

R

- received data translation, 4-7

S

- Service ID, 4-2
- Shift-In/Shift-Out, 4-3
- space compression, 1-2
- split
 - automatic timeout, 4-7
 - defined, 2-4
 - ESC character, 4-5
 - spooler bytestream, 2-4
 - when receiving form feed character, 4-6
- spooled printing, 2-5
- status monitor, 5-1
 - commands
 - Exit, 5-5
 - Lock, 5-5
 - Recnfg, 5-4
 - Split, 5-3
 - Unlock, 5-5
 - Xmt, 5-3
 - description, 5-1
 - display, 5-2
 - entering, 5-2
 - exiting, 5-5
- stripping form feeds, 4-9

T

- transparent mode, 4-7



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